

The most common causes of cardiovascular diseases

(Najczęstsze przyczyny chorób sercowo-naczyniowych)

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Abstract – Introduction. Estimation of the risk of cardiovascular disease is often individualised. It is a theoretical measure because it is impossible to determine all possible disease risk factors. Therefore, such actions often concern selected (main) disease risk factors.

Aim of the study. The aim of the study was to present the leading selected causes of cardiovascular diseases and to draw attention to the quality of life of patients with cardiovascular diseases.

Selection of material. The search was conducted in the Scopus database for the period 2001-2019, using cardiovascular risk factors. The literature found in the Google Scholar database was analysed for the highest number of citations. The literature selected in this way was used as the material for this work.

Conclusions. Raising social awareness of the cardiovascular consequences associated with abnormal lifestyles, including genetic predispositions that help to develop hypertension, hypercholesterolemia and diabetes, is an important element in the prevention of cardiovascular diseases.

Key words - cardiovascular diseases, risk factors, quality of life.

Streszczenie – Wstęp. Szacowanie ryzyko chorób sercowo-naczyniowych ma często charakter zindywidualizowany. Jest działaniem teoretycznym gdyż wyznaczenie wszystkich możliwych czynników ryzyka choroby jest niemożliwe. Dlatego też działania takie dotyczą często wybranych (głównych) czynników ryzyka choroby.

Cel pracy. Celem pracy było przedstawienie wiodących wybranych przyczyn mających znaczenie w powstawaniu chorób sercowo-naczyniowych, a także zwrócenie uwagi na jakość życia chorych na choroby sercowo-naczyniowe.

Dobór materiału. Poszukiwania przeprowadzono w bazie Scopus za okres 2001-2019, używając określenia *czynniki ryzyka chorób sercowo-naczyniowych*. Znalezione piśmiennictwo w bazie Google Scholar przeanalizowano pod kątem największej liczby cytowań. Tak wyselekcjonowane piśmiennictwo posłużyło za materiał do opracowania niniejszej pracy.

Wnioski. Podniesienie wiedzy społecznej na temat konsekwencji sercowo-naczyniowych związanych z nieprawidłowym stylem życia także predyspozycjami genetycznymi pomagającymi w rozwoju m.in nadciśnienia tętniczego, hipercholesterolemii,

cukrzycy jest ważnym elementem profilaktyki chorób sercowo-naczyniowych

Słowa kluczowe - choroby sercowo naczyniowe, czynniki ryzyka, jakość życia.

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- A. The idea and the planning of the study
- B. Gathering and listing data
- C. The data analysis and interpretation
- D. Writing the article
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I. DIETA

Chronic diseases that are linked to poor nutrition have become one of the main health problems in developing countries, including Poland. That is why it is so important to observe a number of basic principles placed in

the Healthy Eating Pyramid. The Mediterranean diet plays a key role here. It protects against heart attacks and is therefore a model prophylactic diet. It provides, in appropriate proportions, fats, proteins and carbohydrates. The use of this diet allows to maintain proper body weight. Meat is eaten in small quantities and bread is used to thicken soups. In addition, the dishes are prepared on steam or grill. Characteristic features of the Mediterranean diet are mainly: low consumption of animal fats and high consumption of olive oil, high consumption of cereal products, vegetables, fruit, pulses, average consumption of alcohol, fish and dairy products and low consumption of meat products. [1-6]

II. OBJECTIVITY

Failure to follow healthy eating habits can lead to obesity. This is an important factor which can lead to ischemic heart disease. This disease is characterised by high body weight and is considered to be a disease of civilisation. To assess the severity of its severity, the following are used, among others: centipede meshes, Cole's index, BMI index. The reason for obesity is usually an increased energy balance. In the Polish population, obesity is 32%, while overweight is 43%. This means that only every fourth Pole maintains a normal body weight. [7] It is a multi-genetic inherited disease and the tendency to excess body weight depends largely on environmental influences. [8]. Unfortunately, the problem of obesity is often underestimated by the majority of society. Many do not regard it as a disease. However, obesity and overweight pose a threat not only to health but also to human life. [7]

III. TYPE 2 DIABETES MELLITUS

Diabetes is undeniably an important risk factor for cardiovascular diseases. The main cause of this condition is an abnormal lifestyle and eating habits. [9] In healthy people, the normal glucose level is maintained thanks to B cells, which secrete insulin. The effect of the autoimmune, chronic process of destroying cells and pancreatic islands is type 1 diabetes. In this type of diabetes, changes may develop for many years before they give the first clinical symptoms (preclinical period). However, in type 2 diabetes (insulindependent), the secretion of insulin is impaired. [9,10] The negative effects of diabetes are primarily related to the vascular system. Coronary heart disease is much

more common in people with diabetes. This condition affects morbidity and mortality.[11] All forms of coronary artery disease, i.e. heart failure, infarction and angina, occur up to twice as often in diabetics than in healthy individuals. However, the prognosis of infarction is 2 times worse than in the rest of the population. It is estimated that up to 50% of diabetic patients die of ischemic heart disease. Initially, diabetes does not give any symptoms. They appear in the next stage of the disease and include: thirst, general weakness, passing large amounts of urine [12]. A very important aspect in preventing diabetes is health education. Thanks to it, patients are properly prepared to take care of themselves. [11,13]

IV. LIPID DISORDERS

Lipid disorders are one of the development factors of atherosclerosis. They are one of the most common risk factors in the development of cardiovascular diseases-. Elevated lipid concentrations are genetically determined. [14] Elevated lipid concentrations mainly concern total cholesterol, triglycerides and LDL fraction cholesterol, while decreased HDL fraction cholesterol. All abnormalities from normal values should be detected and treated as untreated leads not only to atherosclerosis but also increases the risk of coronary artery disease. [15,16] Lipid disorders in most cases are caused by improper nutrition. [15,17] The main aim of treatment of lipid disorders is to reduce LDL cholesterol concentration. Then the HDL cholesterol concentration is increased and the triglyceride level is reduced. It is estimated that a 10% reduction in body weight allows for a reduction in triglyceride levels by up to 30%, and an increase in HDL cholesterol concentration by 8%. The most important recommendation is a healthy and balanced diet in accordance with the guidelines found in the healthy nutrition pyramid. [15,16]

V. ALCOHOL AND SMOKING

Cigarette smoke has undeniable negative effects on the body. The consequences of smoking depend on its length and intensity. [18] Smoking influences the diet. The diet of smokers is characterized by an increasing increase in fat consumption [19] Smokers are twice as likely to develop ischemic heart disease and three times as likely to die suddenly. [20] The risk of stroke increases with the number of cigarettes smoked. Smokers are estimated to be around the

same age as smokers. It is estimated that smokers account for about 30-40% of all patients with a stroke. [19] Alcohol is also an important factor in cardiological diseases. Chronic consumption of alcohol can become dangerous for heart work. Hypokalemia and hypomagnesemia occur, which are caused by increased diuresis, as well as dehydration resulting from inhibition of antidiuretic hormone secretion. All these factors can lead to very serious heart rhythm disorders and even death. The risk of hypertension is also increasing. [20-23] The WHO estimates that approximately 2.5 million deaths per year are caused by alcohol. This is one of the main causes of illness and disability. [21,22]

VI. METABOLIC SYNDROME

The metabolic syndrome is a great danger. It is defined as 'the co-existence of interrelated risk factors of metabolic origin which are conducive to the development of atherosclerotic cardiovascular diseases and type 2 diabetes'. [24] Hypercoagulation, hypertension and steatosis of the liver are characteristic for ZM. All these factors, which make up the metabolic syndrome, affect each other. [24,25] Risk factors for the development of metabolic syndrome include increased alcohol consumption, sedentary lifestyle, mature age, family history of syndrome, overweight and obesity. [24] The criteria for the diagnosis of metabolic syndrome have been provided by several organizations including WHO, American Society of Clinical Endocrinologists and many others. The diagnostic criteria proposed by individual syndromes seem to be similar, however, the threshold values (cut-off points) of individual components slightly differ. According to WHO, the main criteria are insulin resistance features. Additional criteria are: elevated triglyceride concentration, hypertension, obesity, microalbuminuria and low HDL cholesterol concentration. [25,26] It is estimated that the presence of ZM increases the risk of cardiovascular diseases twice and the risk of developing type 2 diabetes increases even fivefold. [24,25,27]

VII. HYPERTENSION

It is estimated that arterial hypertension in Poland occurs in about 16% of the population. The prevalence of hypertension increases with age. After 60 years of age, it is diagnosed in about 40% of people. [28] Moreover, hypertension also occurs in about 5-10% of pregnant women. Its

complications are one of the most common causes of death of both mother and fetus. [29] Hypertension is more common in women, but it occurs at a later age. It is observed that arterial blood pressure increases significantly after menopause. [28]. Several RR categories can be distinguished: o Optimal (< 120 mm Hg / < 80 mm Hg) o Correct (120-129 mm Hg / 80-84 mm Hg) o High correct (130-139 mm Hg / 85-89 mm Hg) o 1st stage hypertension (140-159 mm Hg / 90-99 mm Hg) o 2nd stage hypertension (160-179 mm Hg / 100-109 mm Hg) o 3rd stage hypertension (> 180 mm Hg / > 110 mm Hg) o Insulated systolic arterial hypertension (> 140 mm Hg / < 90 mm Hg) The basis for the treatment of arterial hypertension is non-pharmacological treatment. It consists mainly of a healthy lifestyle [30]. Pharmacological treatment should be implemented after evaluating the effects of non-pharmacological treatment. [31]

VIII. ATHEROSCLEROSIS

Atherosclerosis is a process of chronic inflammation, which involves medium sized arteries such as the kidneys, hips, coronary and carotid arteries and aorta. It is characterized by thickening of the inner membrane of the artery due to accumulation of cholesterol. They lead to blood flow disorders and congestion in microcirculation vessels and arteries. [32,33] Atherosclerotic lesions are mainly caused by vascular endothelial dysfunction. Factors that may damage the endothelium include: oxidative stress, which is associated with hypertension, high concentration of free radicals, diabetes, hypercholesterolemia and toxins released by smokers. Men are more likely to struggle with atherosclerosis. However, this difference diminishes when women start menopause and postmenopause. [32,34] The reason for the early development of atherosclerotic lesions is probably due to the occurrence of high LDL cholesterol levels in the family. This phenomenon is called hypercholesterolemia. It is connected with the development of atherosclerosis and its complications from an early age. [34]

IX. QUALITY OF LIFE AS AN IMPORTANT MEASURE OF HEALTH

It has not been known since today that everyone strives to achieve the highest possible status, whether financial or

social. These are important factors in our daily lives. The term "health" is defined not only as the absence of illness or disability, but also as "a state of complete physical and social well-being" (WHO). [35] Quality of life, which is conditioned by the state of health, assumes that the basic condition for an optimal quality of life is health. [36] Although the term 'quality of life' is becoming an increasingly important aspect of our daily lives, researchers have not developed a clear definition of the term. There are therefore many 'quality of life' which are interpreted differently not only by medical scientists but also by sociologists, educators and psychologists. Philosophy and medicine scientists have tried to establish what is the basis for a happy and satisfying life. This was already the case in the times of great thinkers such as Hippocrates and Aristotle. For Hippocrates, happiness in life was to express itself as a state of inner balance. For Christians, the most important thing in human existence was a life full of sacrifice and suffering, which was to be rewarded with eternal life after death. Philosophers from the East had even different convictions. In China, the concept of happiness was to be expressed through a balance between the elements Yang and Yin. In Buddhist philosophy, this was made possible by the mythical 'nirvana'. Over the last dozen or so years, a large number of studies have been carried out on the quality of life conditioned by the state of health. It has been recognised that self-assessment of one's own health in the process of treatment and care for the patient is extremely important. [36] It must therefore be recognised that any measurement of a given aspect in a person's life can be considered a measure of quality of life. [38] In the treatment process, in addition to achieving medical goals, non-medical goals also play an important role. It will allow for more efficient functioning both physically and socially. [39] In order to properly determine the quality of life, not only an objective assessment of the state of health but also a subjective assessment of the patients should be taken into account. [36] However, determining quality of life is not an easy task. It is a subjective value and depends to a large extent on the mental state and personality traits, value system, preferences, etc. [39] The disease undeniably affects the quality of life. It can affect human functioning in many dimensions. In the case of cancer, it is accompanied by anxiety about the reaction of the environment and high costs of treatment, which may cause financial problems and depression. There are different reactions and types of human behaviour when faced with the disease. Some people fight, others give up. Behaviour towards the disease is also part of quality of life. [38]

X. CHARACTERISTICS OF ISCHAEMIC HEART DISEASE

The most common cause of death, because about 45% are cardiovascular diseases. According to the WHO, in 2008 alone, they were responsible for around 30% of all deaths worldwide. Their main causes are heart attack and stroke. [40] The incidence of symptoms of ischemic heart disease in elderly people increases with age. [41] Ischemic heart disease is also called coronary heart disease. It is a chronic disease that develops slowly and often asymptomatic. The patient often only becomes aware of his or her disease when severe complications such as a heart attack occur. Coronary heart disease is a syndrome of clinical symptoms resulting from the imbalance between myocardial oxygen and energy requirements and their actual supply. The most common cause of myocardial ischemia is arteriosclerosis. [42] A stenosis which exceeds 50% of the lumen diameter of the coronary artery is considered to cause impairment of blood flow. This condition leads to ischaemia, which in turn causes coronary pain. However, the concept of "ischaemic heart disease" is a much broader concept and covers all states of ischaemic heart disease. When talking about ischemic heart disease, a common term is "acute coronary syndrome". It is a condition in which myocardial ischemia occurs as a result of changes in the coronary vessels. The cause is a sudden imbalance between the heart's need for oxygen and its supply. In the pathogenesis of acute coronary syndromes, an unstable atherosclerotic plaque ruptures, leading to the formation of a thrombus at the rupture site. This results in a regional decrease in coronary flow. [43] Percutaneous coronary interventions (PCI) are currently the primary treatment for acute coronary syndromes. All these interventions are preceded by coronary angiography. This is an invasive diagnostic method, which allows to visualize the light anatomy of the epicardial arteries. [42] Nursing staff play an important role in the direct care and monitoring of patients with acute coronary syndrome. The earliest form of rehabilitation is respiratory rehabilitation and thromboprophylaxis. [43]

XI. REFERENCES

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